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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,747	11/26/2003	Peter Heinrich	038724.52882US	3944
23911	7590	07/28/2005	EXAMINER	
CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300			NGUYEN, DINH Q	
			ART UNIT	PAPER NUMBER
			3752	

DATE MAILED: 07/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

SP

Office Action Summary	Application No. 10/721,747	Applicant(s) HEINRICH ET AL.	
	Examiner Dinh Q. Nguyen	Art Unit 3752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2005.
 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
 4a) Of the above claim(s) 1-8 is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 9-17 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 9-12, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Steenkiste et al. in view of Browning (U.S. Patent No. 5,531,590).

Van Steenkiste disclose a cold gas spray system having a Laval nozzle 54 with an outer nozzle body 34, a powder tube 50 capable of feeding spraying particles into the nozzle body, wherein the powder tube 50 is aligned axially and concentrically (see figure 2). Van Steenkiste does not teach the powder tube ends in a divergent section. However, Browning discloses a spraying system having a divergent nozzle with a powder tube 29 for feeding powder through the inlet that is located in the divergent section 23 of the nozzle. Therefore, it would have been obvious to one having ordinary skill in the art to have provided the Laval nozzle of Van Steenkiste with the powder tube ends in a divergent section as suggested by Browning. Doing so would provide an efficient Laval nozzle (see Browning column 2, lines 16+).

With respect to claims 11, 12, 16 and 17, Van Steenkiste et al in view of Browning do not teach the annular area between the outer contour of the powder tube and the inner contour of the outer nozzle are about 1-30 mm² or about 3-10 mm². Van

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Steenkiste et al in view of Browning also do not teach the ratio between the cross sectional area of the gas passage at the narrowest point to the cross sectional area at the outlet of the nozzle is between 1:2 and 1:25 or between 1:5 and 1:11. At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to have the Laval nozzle of the Van Steenkiste device to have the annular area of about 1-30 mm² or about 3-10 mm², or the ratio between the cross sectional area of the gas passage at the narrowest point to the cross sectional area at the outlet of the nozzle is between 1:2 and 1:25 or between 1:5 and 1:11, because Applicant has not disclosed that the claimed dimensions of the annular area provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with either the Van Steenkiste dimension or the claimed dimensions, because they all perform the same function of drawing the powder out of the powder tube into the Laval nozzle. Therefore, it would have been an obvious matter of design choice to modify the device of Van Steenkiste et al. in view of Browning to obtain the invention as specified in claims 11, 12, 16 and 17.

3. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Steenkiste et al. in view of Browning as applied to claims 9-12, 16, and 17 above, and further in view of Zverev et al.

Van Steenkiste et al. in view of Browning teaches all the limitations of the claims except for the outer contour of the powder tube with the smooth cylindrical contour of the outer nozzle form the Laval nozzle. However, Zverev et al discloses a powder-

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spraying device with a powder tube 13 locating concentrically with the outer nozzle 19 such that they formed a Laval nozzle (see figure 2). Therefore, it would have been obvious to one having ordinary skill in the art to have provided the device of Van Steenkiste et al. and Browning with the outer contour of the powder tube with the smooth cylindrical contour of the outer nozzle form the Laval nozzle as suggested by Zverev et al. Doing so would provide better coatings (see column 2, lines 13-26).

Response to Arguments

4. Applicant's arguments filed 4/26/05 have been fully considered but they are not persuasive.
5. Applicant's arguments with respect to claims 9-17 have been considered but are moot in view of the new ground(s) of rejection.
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dinh Q. Nguyen whose telephone number is 571-272-4907. The examiner can normally be reached on Monday-Thursday 6:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Scherbel can be reached on 571-272-4919. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Dinh Q. Nguyen
Primary Examiner
Art Unit 3752

dqn